SECTION 2
SITE CHARACTERIZATION

2.1 SITE DESCRIPTION AND BACKGROUND

2.1.1 Site Location

JPG is situated on 55,264 acres in Jefferson, Ripley, and Jennings Counties, Indiana. The installation is rectangular in shape, with approximate dimensions of 18 miles in the north-south direction by five and one-half miles in the east-west direction. The main gate of the installation is approximately five miles north of Madison, Indiana and 56 miles northeast of Louisville, Kentucky.

2.1.2 Site History

2.1.2.1 JPG was used as a U.S. Army Proving Ground between 1941 and 1995. Based on historic data, of the more than 27 million OE items tested at JPG's ranges, approximately 1.5 million may remain at the site. The OE items range in size from small caliber firearms projectiles to 2,000 pound bombs.

2.1.2.2 Prior to Department of Defense (DOD) ownership, land use was made up of small family farms and forested areas. When DOD took over the property in late 1940 several small communities were condemned and about 500 families were relocated.

2.1.2.3 The mission of JPG included performing production and post-production tests of conventional ammunition components and other OE items. Units at JPG also conducted tests of ammunition propellants and other weapon systems components and tested and evaluated all types of munitions. Units at JPG performed this function almost continuously until September 1994. The facility closed on September 30, 1995 and its mission was reassigned to Yuma Proving Ground in Arizona.

2.1.2.4 This EE/CA investigation was conducted on a 323-acre wooded site located on the western side of the Cantonment Area. The site lies behind the main firing line and, as a result, large caliber projectiles or bombs are not likely to be encountered here. However, it is possible that the area

may contain mortar rounds, rockets, or other munitions used by light infantry units. The site is further divided into two parcels, including a parcel approximately 312 acres in size and a smaller parcel approximately 11 acres in size (Figure 2-1). The larger parcel is bordered by Tokyo Road to the east, Woodfill Road to the north, and by an arc running just to the east of Perimeter Road to the west. The smaller parcel is located north and east of the larger parcel and is bordered by Woodfill Road to the south and Tokyo Road to the west.

2.1.3 Topography

2.1.3.1 JPG is located in the Till Plains section of the Central Lowlands physiographic province. The topography of the Till Plains section is not bedrock controlled, but is predominantly a depositional topography. The topography of the region is dominated by gently rolling hills as a result of glacial processes. At the JPG facility, the northern half of the installation is gently rolling, while the southern half is generally flat.

2.1.3.2 Several stream corridors traverse JPG, flowing generally to the west and southwest. Draining of the creeks is well developed, consisting of numerous tributaries. Two man-made bodies of water also exist within the boundaries of JPG. Old Timbers Lake, an impoundment of Little Otter Creek, runs generally north-south in the northeastern portion of the installation. Krueger Lake, a smaller recreational lake created by impounding Habert's Creek, lies in the southeastern corner of JPG. (Final Environmental Impact Statement, 1995)

2.1.4 Geology and Soils

2.1.4.1 The bedrock exposed in Jefferson and Ripley Counties belongs to the Ordovician, Silurian, and Devonian Systems of the Paleozoic era. These rocks were deposited between 450 and 350 million years ago as fine-grained sediments in shallow marine waters. The strata dip 20 to 25 feet per mile to the west. In the area of JPG, the rocks found at the surface are

Figure 2-1 – 323-acre site showing the two parcels

Silurian. Table 2.1 provides a generalized stratigraphy of the unconsolidated parent materials deposited by water, ice, and wind that occurs in the area. Due to the discontinuous nature of these deposits, any given area may be missing the representative deposits from any geologic series. (Archives Search Report, 1995)

TABLE 2.1

GENERAL GEOLOGIC STRATIGRAPHY
JEFFERSON PROVING GROUND
MADISON, INDIANA

GEOLOGIC SERIES	DESCRIPTION	THICKNESS (IN FEET)
Holocene	Organic-rich, silty, alluvium	0-15
	Silty and loamy alluvium	0-15
	Channery and flaggy alluvium	0-5
	Silty and loamy alluvium	0-10
Pleistocene	loess	0-4
	Silty or loamy alluvium on Ohio River terraces	0-100
	Lacustrine sediments	0-30
	Glacial drift	0-25
	Glacial drift or terrace outwash	0-10
	Paleosol on red drift and terra rossa residuum	0-10

2.1.4.2 The Devonian bedrock is predominantly composed of limestone that exhibits karstic features in some areas. Silurian rocks are predominantly limestones and dolomites interspersed with thin shales and bedded gypsiferrous deposits. The carbonate beds are typically massive, crystalline dolomites grading locally into reef structures. The basal stratigraphic and geohydrologic boundary of the system is located in the Upper Ordovician. This unit consists predominantly of shales and cherty/argilliferous limestones and fine clastics. (Archives Search Report, 1995)

2.1.4.3 JPG is underlain by deep, nearly level and gently sloping, poorly drained and somewhat poorly drained soils formed in a thin mantle of loess and in the underlying glacial drift. The surface layer of the soil is generally dark grayish brown or grayish brown, mottled, silty sandy clay, to a depth of 12 inches. The subsoil layer is composed of silty sandy clay that is light gray, yellowish brown, mottled, and friable. The subsoil layer extends to a depth of 80 inches. The available water capacity of the soil is very high and the permeability is slow. There is a perched, seasonal water table at or near the surface during the winter and spring months. The corrosivity of the soil is high for both uncoated steel and concrete. (Archives Search Report, 1995)

2.1.4.4 In Jefferson County the average frost depth of the soils is reported to be 11 inches, with an extreme frost depth of 18 inches. The mean first frost occurs on October 25th while the mean last frost occurs on April 20th. For both Jennings County and Ripley County the average frost depth is reported to be 12 inches with an extreme frost depth of 20 inches. The mean first frost for these two counties is reported to occur on October 20th while the mean last frost occurs on April 26th. (Personal Communication, USDA, 2000)

2.1.4.5 Within the boundaries of JPG there are several drainage ways and creeks. The soils that surround these wet areas have basically the same profile and character, but the topography of the surface differs. The slopes are greater and vary from 2% to 10%. The topography of these wet areas is that of narrow summits or shoulder slopes coming off of the upland flat regions described above. There is a perched water table in these areas as well. (Archives Search Report, 1995)

2.1.5 Meteorology

2.1.5.1 The area surrounding JPG has a typical midwestern continental climate. The weather is quite variable due to the influx of high and low pressure systems and warm, moist air from the Gulf of Mexico. Summers are generally quite warm, while the winters are moderately cold. Precipitation is fairly uniform throughout the year, averaging three to four inches per month. Spring and summer thunderstorms push the monthly average over four inches between March and June, while the fall of the year sees monthly rainfalls close to three inches. Measurable snowfall can be experienced throughout the November to March period and averages about 16 inches annually.

2.1.5.2 Approximately 39 days per year see temperatures exceeding 90?F, with occasional occurrences of temperatures in excess of 100?F. The record high of 105?F occurred in July 1954. Winter temperatures are generally mild, with occasional periods of very cold temperatures. Although

temperatures below 0?F are uncommon, the record low temperature for the area is -25?F, which occurred in January 1994.

2.1.5.3 Winds vary from about six to ten miles per hour from the south throughout the year, except for the months of February, March, and August when the wind direction is from the north-northwest. Wind gusts of up to 78 miles per hour have been recorded at the Louisville weather station, which is the nearest source for climatological data. The strongest wind gusts are normally associated with thunderstorms. The area can experience occasional severe weather, including tornadoes. Several deaths from tornadoes occurred in Madison during 1974. Climatalogical data for the JPG area is summarized in Table 2.2.

2.1.6 Demographics

2.1.6.1 JPG is located north of the city of Madison, Indiana. Centers of activity include Clifty Falls State Park, Lanier State Historic Site, recreational areas along the Ohio River, and numerous smaller parks throughout the area. The campus of Hanover College is located in nearby Hanover, Indiana.

2.1.6.2 Jefferson County has a diversified business and industry profile. Approximately 31% of the county's population is employed in manufacturing, 30% in the service industry, and 23% in retail trade. The greater Madison area supports retail, wholesale, and service industries typical of its size.

2.1.6.3 The area around JPG is characterized as generally rural. The town of Madison has a population of approximately 12,000, while Jefferson County as a whole has a population of approximately 30,000. Nearby Ripley County has a population of approximately 26,000, while Jennings County has a population of approximately 23,000.

TABLE 2.2

CLIMATOLOGICAL DATA
JEFFERSON PROVING GROUND
MADISON, INDIANA

Month	Average Daily Minimum Temp. (?F)	Average Daily Maximum Temp. (?F)	Average Monthly Mean Temp. (?F)	Average Precipitation (inches)	Wind Velocity (MPH)	Wind Direction
January	24.1	40.8	32.5	3.19	9.6	S
February	26.8	45.0	35.9	3.24	9.6	NW
March	35.2	54.9	45.1	4.17	10.2	NW
April	45.6	67.5	56.6	4.05	9.8	SW
May	54.6	76.2	65.4	4.56	8.0	SE
June	63.3	84.0	73.7	4.12	7.4	S
July	67.5	87.6	77.6	4.08	6.8	S
August	66.1	86.7	76.4	3.37	6.5	N
September	59.1	80.6	69.9	2.91	6.8	SE
October	46.2	69.2	57.7	3.06	7.3	SE
November	36.6	55.5	46.1	3.69	8.9	S
December	28.9	45.5	37.2	3.41	9.3	S
Annual	46.2	66.1	56.2	43.88	8.3	S

2.1.7 Sensitive Populations and Ecosystems

2.1.7.1 During the spring and summer of 1993 and 1994 the Bloomington Field Office of the U.S. Fish and Wildlife Service (USFWS) performed biological surveys of JPG. The surveys included stream fish collection, plant surveys, breeding bird surveys, and bat surveys. The results of these

surveys indicate that the land of JPG provides habitat for a variety of wildlife. These surveys also revealed that JPG has diverse vegetative resources and contains a wide variety of community types, from frequently burned meadows to mature hardwood forests. The surveys also found that JPG supports a number of unique vegetation associations that include numerous federally-protected species (endangered, threatened, candidate and special concern) and species that the state considers rare.

2.1.7.2 According to information provided by the USFWS, there have been no sightings or reports of federally listed, threatened, or endangered species in any area south of the firing line, including the 323-acre wooded site. A copy of a letter from the Bloomington, Indiana Field Office of the USFWS to the Commander of the U.S. Army Test and Evaluation Command on the subject is included in Appendix G. There have been sightings of several State of Indiana listed endangered species in the area north of the firing line. These include the northern harrier (Circus cyaneous), the short eared owl (Asio flammeous), henslow's sparrow (Ammodramus henslowii), and kirtland's water snake (Clonophis kirtlandii). The northern harrier, short eared owl, and kirtland's water snake are year round residents, while henslow's sparrow arrives at the site in April and departs in the fall. All three species of birds are ground nesters, often choosing grassy areas to nest in. The nesting season varies from species to species, with the sparrow having the longest nesting season from early April to late September. The northern harrier and short eared owl are known to nest anywhere from April to mid-June. As these bird species generally choose to nest in grassy areas, it is unlikely that they would be found in the 323-acre wooded site. Kirtland's snake is a water snake that prefers the underside of flat rocks in wet meadows or open water. The snake has also been known to occupy areas where crayfish burrows are located and inhabits wet, wooded areas as well.

2.1.7.3 There are also no known federally-listed threatened or endangered species of flora in any area south of the firing line, including the 323-acre wooded site. Although the State of Indiana tracks the presence of "rare" plant species, according to the State of Indiana's Department of Natural Resources there are no state regulations that protect rare plant species and all listings they track are for their own internal purposes only.

2.1.7.4 Although a formal wetlands delineation has not been conducted at JPG, approximately 6,000 acres of land exhibiting the characteristics of wetlands have been identified. Linear riverine wetlands associated with the base's streams extend approximately 69 miles along stream banks. Palustrine forested and palustrine scrub-shrub wetlands are common and characterized by slightly mature, broad-leaved deciduous trees varying in height from 10 to 20 feet. (Final Environmental Impact Statement, 1995)

2.1.8 Previous UXO Site Investigations

2.1.8.1 UXO investigations and clearance actions have been conducted in several areas within the Cantonment Area of JPG. Figure 2-2 illustrates the UXO status of property throughout the Cantonment Area (JPG website - www.jpg.army.mil/uxo.gif, 1999). Available information regarding previous investigations is summarized in the following paragraphs.

2.1.8.2 From October through December 1996, Human Factors Applications, Inc. performed an OE TCRA in selected areas south of the firing line. The TCRA was conducted on three parcels where a total of 593 pieces of ordnance were found and destroyed and more than 22,000 pounds of scrap were recovered.

2.1.8.3 Airfield Site. The Airfield Site consists of approximately 591 acres in the Cantonment Area on the eastern side of Tokyo Road, including several former runways and the paved section of Woodfill Road extending 3,000 feet west of the eastern boundary of JPG. According to the historical record, the National Guard used the former airfield for training with practice mortars and rockets. The objective of the investigation was to locate, identify and dispose of all surface and subsurface OE to a depth of four feet across the entire area. The Final Removal Report (UXB, August 1998) indicates that OE related scrap, inert UXO items, and live or suspect UXO-related items were recovered from this area. A total of 405 OE items were recovered, 19 of which were suspected of containing high explosives. The majority of the OE items recovered from the airfield site were 60mm mortar rounds and 22mm subcaliber mortar rounds. In addition, the number of slap flares and rifle grenades found at the airfield site were reported as "too numerous to count" and were added to the OE scrap totals. (JPG website - www.jpg.army.mil/ordnance.htm) A Finding of Suitability to Transfer (FOST) has been prepared for this parcel and includes a "Notice of Unexploded Ordnance and Restrictive Covenant".

2.1.8.4 East Site. UXB also conducted a clearance operation on approximately 800 acres south of Kreuger Lake known as the East Site. The objective of the investigation was to locate, identify and dispose of all surface and subsurface OE to a depth of four feet across the entire area. The majority of the OE items found on the East Site were 60mm and 81mm mortar

fig 2-2 uxo status of property within cantonment area

rounds. Of the 23,432 OE items found as of July 1, 1999 at the East site, 23 items were suspected to contain high explosives (HE) and 11 of those (1-75mm projectile, 1-81mm illuminating mortar round and 9-M31 rifle grenades) were confirmed to contain HE. (JPG website - www.jpg.army.mil/ordnance.htm)

2.1.8.5 323-Acre Wooded Site. A historical installation map indicated an area near the intersection of Tokyo Road and the railroad tracks that was designated as an Ammo Dump. It was unclear from the historical record whether the term " Ammo Dump" referred to an ammunition storage area (Ammo Dump was often used in this context during World War II) or if the area was designated for ammunition disposal. The exact location and type of materials potentially disposed of at the site was unknown. This site was designated as Site 16 during the Remedial Investigation (RI) and an investigation of the area was conducted by RUST Environmental as part of the RI field investigation. Previously, a visual site inspection was conducted of the area by A.T. Kearney in 1992. During this survey there were no visible signs of disposal (e.g. mounding, pits, or soil disturbance) in the area. Magnetometry and an EM-31 terrain conductivity survey were conducted of Site 16 by RUST. Initially, an EM-31 survey of the area was conducted with a 50-foot grid spacing. After analyzing the results of this survey, a closer-spaced magnetometry survey was conducted of that portion of the site deemed most likely to have been used for disposal. The results of the geophysical surveys of the area indicated that there was no buried metal at the site other than the remnants of a wire fence. Because the geophysical survey results indicated that there was no UXO in the area and there was no evidence that the area had ever been used for ammunition disposal, no further action was recommended for the site.

2.1.9 Previous HTW Investigations

2.1.9.1 According to the Archives Search Report (ASR) for JPG nine environmental Hazardous and Toxic Waste (HTW) investigations have been performed at JPG as a result of the Installation Restoration Program (IRP) and the closing of the facility. Table 2.3 provides an overview of these investigations. The ASR contains a more complete summary of these investigations. (ASR, 1995)

2.1.9.2 Based on a review of the available documentation that includes these summaries in the ASR as well as information gained during the site visit, there are no HTW concerns for the 323-acre wooded site.

TABLE 2.3

PREVIOUS HTW INVESTIGATIONS
JEFFERSON PROVING GROUND
MADISON, INDIANA

Title	Agency	Author	Date
Installation Assessment Relook Program Working Document – Jefferson Proving Ground	Environmental Photographic Interpretation Center (EPIC) of the US Environmental Protection Agency	Bionetics Corp	June 1986
Update of the Initial Installation Assessment of Jefferson Proving Ground	US Army Toxic and Hazardous Material Agency	Environmental Science and Engineering, Inc.	Jan 1988
Final Report – Ground Water Contamination Survey No. 38-26-0306-89 – Evaluation of Solid Waste Management Units (SWMU) – Jefferson Proving Ground	US Army Environmental Hygiene Agency	US Army Environmental Hygiene Agency	May 1989
Enhanced Preliminary Report – Jefferson Proving Ground	US Army Toxic and Hazardous Material Agency	Ebasco Environmental	Mar 1990
Preliminary Review / Visual Site Inspection – Jefferson Proving Ground	US Environmental Protection Agency	A.T. Kearny, Inc.	Feb 1992
Cleanup and Reuse Options - U.S. Army – Jefferson Proving Ground	US Army Armament, Munitions and Chemical Command	Mason and Hangar - Silas Mason Co., Inc.	Apr 1992
Preliminary Site Inspection Report for Jefferson Proving Ground	US Army Environmental Center	Advanced Sciences, Inc.	Aug 1993
Community Environmental Response Facilitation Act (CERFA) Report - Jefferson Proving Ground	US Army Environmental Center	The Earth Technology Corp.	Apr 1994
Jefferson Proving Ground – South of the Firing Line - Final Draft Remedial Investigation – Volume I	US Army Environmental Center	Rust Environmental and Infrastructure Corp.	July 1994

2.2 LAND USE

2.2.1 In October 1992, the Army issued a Reuse Options Plan for JPG (U.S. Army, 1992). The plan outlines numerous reuse options and the projected cost for cleanup. The goals outlined in the plan include the productive reuse of JPG in accordance with sound environmental principles. To date, three parcels have been deemed suitable for reuse. The three parcels have been designated as Parcel A, B, and C. Parcel A is the area north of the firing line. Because the 51,000 acres known as the Northern Firing Range Area are extensively contaminated with UXO, it is likely that the Army will retain ownership of this area. Parcel C is a 1.19 acre area south of JPG proper. This area contains a pump building and two water wells. This parcel is being transferred to the City of Madison.

2.2.2 The most economically viable area is known as Parcel B. This area includes 4,314 acres south of Firing Line Road and is also known as the Cantonment Area. As a result of a bid on the property in December 1995, approximately 3,400 acres in the Cantonment Area are currently being leased in furtherance to conveyance to the Ford Lumber and Building Supply Company. The title to portions of the property will be transferred as the areas are cleaned up. This area contains approximately 300 buildings of permanent and semi-permanent construction and is being used for a variety of activities including agriculture, light industry, and residential development of former base housing. In addition, approximately 220 acres surrounding Kreuger Lake have been transferred to Jefferson County to be used as a park. Other parcels south of Firing Line Road have been transferred to the City of Madison Port Authority and to the Southeastern Indiana Solid Waste Disposal Recycling Operation.

2.2.3 The 323-acre wooded site is located at the far western end of Parcel B. Currently, the Ford Lumber and Building Supply Company has first right to purchase the land upon completion of any necessary environmental cleanup activities. If the Ford Lumber and Building Supply Company exercises its option to purchase the land, potential land uses may include lumbering, light industrial, or open green space.

2.3 ASSESSMENT OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

2.3.1 Introduction

2.3.1.1 Section 121(d)(1) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), requires that remedial actions must attain a degree of cleanup that assures

the safety of human health and protection of the environment. Moreover, all potential applicable or relevant and appropriate requirements (ARARs) must be outlined. ARARs include federal standards, requirements, criteria, and limitations under state environmental or facility siting regulations that are more stringent than federal standards.

2.3.1.2 Although the requirements of CERCLA Section 121 generally apply as a matter of law only to remedial actions, USACE's policy for response actions is that ARARs will be identified and attained to the extent practicable. Three factors are applied to determine whether identifying and attaining ARARs is practical in a particular response situation. These factors include:

- ?? the exigencies of the situation;
- ?? the scope of the response action to be taken; and
- ?? the effect of ARAR attainment on the statutory limits for response action duration and cost.

2.3.1.3 ARARs are identified on a site-specific basis and involve a two-part analysis: first, a determination is made whether a given requirement is applicable and then, if it is not applicable, a determination is made whether it is nevertheless both relevant and appropriate. When this analysis results in a determination that a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable.

2.3.1.4 "Applicable" requirements are those cleanup standards, control standards, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant or contaminant, remedial action, location, or other circumstance at a remedial action site. "Relevant and appropriate" requirements are cleanup standards and control standards, and the substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to ordnance, a remedial action, the location, or other circumstance at a remedial action site, address problems or situations sufficiently similar to those encountered at a site to where their use is well-suited.

2.3.1.5 There are three categories of ARARs: chemical-specific, location-specific, and action-specific. According to the NCP, chemical-specific ARARs are usually health or risk-based numerical values that establish the acceptable amount of concentration of a chemical that may remain in, or be discharged to, the ambient environment. Location-specific ARARs generally are restrictions placed upon the concentration of hazardous substance or the conduct of activities solely because they

are in special locations. Some examples of special locations include flood plains, wetlands, historic places, and sensitive ecosystems or habitats. Action-specific ARARs are usually technology or activity-based requirements or limitations placed on actions taken with respect to hazardous wastes, or requirements to conduct certain actions to address particular circumstances at a site.

2.3.1.6 Non-promulgated advisories or guidance documents issued by federal or state governments do not have the status of potential ARARs. However, these "to be considered" criteria (TBC) may be used in determining the necessary level of cleanup for human safety and protection of the environment. Potential ARARs and TBCs for the EE/CA of the 323-acre wooded site are listed in Table 2.4 and discussed in the following paragraphs.

2.3.2 Chemical-Specific ARARs

No chemical-specific ARARs or TBCs have been identified for the OE response action at the 323-acre wooded site because only the removal of OE is being considered in this report. Ordnance activities rarely result in chemical contamination of the environment because the chemicals contained in an OE item are, by design, consumed during the explosion of the round. Residual contamination that may have occurred as a result of ordnance burial, detonation, or disposal is not included in the scope of this investigation. Chemicals that may be contained within UXO are addressed through the action-specific DOD requirements for removal and disposal of OE items.

TABLE 2.4
POTENTIAL ARARS AND TBCS FOR THE RESPONSE ACTION
JEFFERSON PROVING GROUND, INDIANA

Activity	ARAR/TBC	Citation	Applicability or Relevance
Chemical-Specific			
None			
Location-Specific			
Location of an action within an area where it may cause irreparable harm, loss or destruction of significant artifacts or historic landmarks.	National Historic Preservation Act	36 CFR Part 800 23 CFR Part 771 36 CFR Part 60 36 CFR Part 63 Executive Order 11593	During response action, any material that may be considered of archeological or historical value will be reported pursuant to requirements.
	Preservation of Historical and Archeological Data	16 USC 469a 36 CFR 66	Requires the preservation of historical or archeological data from loss or destruction.
	Protection of Archeological Resources	43 CFR Part 7 36 CFR Part 296 32 CFR Part 229 18 CFR Part 1312	Requires a permit to excavate, remove, or otherwise alter any archeological resources.
	Preservation of American Antiquities	43 CFR Part 3	Requires a permit for the examination of ruins, excavation of archeological sites, and gathering of objects of antiquity.
Location of an action within an area where it may cause irreparable harm, loss or destruction of significant natural habitat.	Endangered Species Act	16 USC ? 1531 et. seq.	Requires that authorized actions do not jeopardize the continued existence of endangered or threatened species, or their habitats.
	Protection of Wetlands	33 CFR 320 et. Seq. 23 CFR 777 Executive Order 11990	Requires action be taken to minimize the loss or degradation of wetlands.

TABLE 2.4 (Continued)
POTENTIAL ARARS AND TBCS FOR THE RESPONSE ACTION
JEFFERSON PROVING GROUND, INDIANA

Activity	ARAR/TBC	Citation	Applicability or Relevance
	Wilderness Act of 1964	PL 88-577 16 USC 1131-1136	Requires preservation and protects wilderness areas in their natural state for present and future generations.
	National Forest Management Act of 1976	PL 94-588	Requires preparation of resource management plans that provide for multiple use and sustained-yield of products and services.
	Migratory Bird Treaty Act of 1918	16 USC 703-712	Protects migratory birds, nests, and eggs from disturbance, damage, or movement from place to place.
	Bald and Golden Eagle Protection Act of 1940	16 USC 668-668d, 54 Stat. 250, as amended	Prohibits, except under certain specified conditions, the taking, possession, and commerce of bald eagles.
	Fish and Wildlife Coordination Act of 1958	PL 85-654 16 USC 661-667d	Requires measures for conservation, maintenance, and management of wildlife resources.
	Fish and Wildlife Conservation Act of 1980	PL 99-645	Encourages states to develop conservation plans for non-game fish and wildlife of ecological, educational, aesthetic, cultural, recreational, economic, or scientific value; requires determination of the effects of environmental changes and human activities on same.

TABLE 2.4 (Continued)
POTENTIAL ARARS AND TBCS FOR THE RESPONSE ACTION
JEFFERSON PROVING GROUND, INDIANA

Activity	ARAR/TBC	Citation	Applicability or Relevance
	Sikes Act of 1960, 1974, and Amendments of 1986, 1997 Title XXIX	PL 86-797, PL 93-205, PL 99-561, PL 105-85	Program of planning for, and the development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation at each military reservation.
Action-Specific			
Removal Action Activities	Identification and Listing of Hazardous Waste	40 CFR 261	Established criteria for designating a solid waste as a hazardous waste. Applicable to the characterization of contaminated soils / debris as hazardous or non-hazardous.
	Standards Applicable to Generators of Hazardous Waste	40 CFR 262	Establishes standards for generators of hazardous waste. Applicable to management of RCRA-hazardous wastes.
	Indiana Hazardous Waste Management Rules	Indiana Administrative Code, Title 329, Article 3.1	Establishes a hazardous waste management program consistent with RCRA. Establishes standards for identifying a hazardous waste as well as standards for hazardous waste management procedures for generators, transporters, owners, and operators of off-site hazardous waste facilities.

TABLE 2.4 (Continued)
POTENTIAL ARARS AND TBCS FOR THE RESPONSE ACTION
JEFFERSON PROVING GROUND, INDIANA

Activity	ARAR/TBC	Citation	Applicability or Relevance
	Standards Applicable to Transporters of Hazardous Waste	40 CFR 263	Establishes standards that apply to transporters of hazardous waste within the US if the transportation requires a manifest. Applicable to off-site transportation of hazardous waste for treatment / disposal.
	Department of Transportation Standards for Transportation of Hazardous Materials	49 CFR Parts 172, 173	Identifies requirements for manifests, labeling, marking, placarding, and training for hazardous materials transportation. Applies to off-site transport of hazardous waste including investigation-derived waste.
	Indiana Hazardous Waste Law	Indiana Code Title 13 Article 7, Chapter 3.5	Establishes requirements for the proper and safe transportation, treatment, storage, and disposal of any hazardous waste that is generated in or transported into the state.
	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities	40 CFR 264	Establishes minimum national standards that define the acceptable management of hazardous wastes for owners and operators of facilities that treat, store, or dispose. Applicable to off-site treatment, storage and disposal of RCRA hazardous wastes.
	Indiana Solid Waste Management Laws	Indiana Code Title 13 Article 7, Chapters 10.5 and 22	Establishes requirements concerning solid waste management and operation of a landfill. Potentially applicable to off-site disposal of solid waste.

TABLE 2.4 (Continued)
POTENTIAL ARARS AND TBCS FOR THE RESPONSE ACTION
JEFFERSON PROVING GROUND, INDIANA

Activity	ARAR/TBC	Citation	Applicability or Relevance
	Indiana Voluntary Cleanup Program	Indiana Senate Enrolled Act 392	Establishes technical guidelines and instructions for applying the Voluntary Cleanup Program (VCP) and preparing and reviewing VCP Work Plans. Provides specific standards for cleanup criteria.
	Occupational Safety and Health (Construction)	29 CFR 1926	Identifies worker safety standards for construction activities. Potentially applicable to any removal activities.
	Occupational Safety and Health (HAZWOPER)	29 CFR 1910	Identifies worker safety and training requirements for occupations. Applies to all activities involving hazardous materials / hazardous waste.
Future Land Use	Environmental Effects of Army Actions	AR 200-2 40 CFR 1500-1508	An Environmental Assessment (EA) or an Environmental Impact Statement (EIS) is required to ensure that commercial or residential development would not have an adverse impact on the environment.
	Environmental Protection and Enhancement	AR 200-1	TBC that requires Army compliance with all environmental statutes and regulations and consultation with Federal, state, and local regulatory agencies.

TABLE 2.4 (Continued)
POTENTIAL ARARS AND TBCS FOR THE RESPONSE ACTION
JEFFERSON PROVING GROUND, INDIANA

Activity	ARAR/TBC	Citation	Applicability or Relevance
Excavation	Dept. of Army Ammunition and Explosive Safety Standards	AR 385-64	TBC that establishes Army standards for locating, handling, and disposing of munitions.
	Department of Defense Ordnance Safety Standards	DOD 6055.9-STD	TBC that requires specialized personnel be employed in the detection, removal, and disposal of OE.

2.3.3 Location-Specific ARARs

There are numerous potential location-specific ARARs pertaining to the response action at the 323-acre wooded site. The ARARs include the protection of historical and archeological resources, the protection of wetlands, protection of wildlife and habitat resources, and management considerations for forested areas. Table 2.4 lists the location-specific ARARs, shows the legislative citation for each, and provides a brief description of the requirements contained in each ARAR.

2.3.4 Action-Specific ARARs

There are also several action-specific ARARs that may be applicable in the event that any type of removal action is performed on the 323-acre site in the future. Table 2.4 lists the action-specific ARARs, shows the legislative citation for each, and provides a brief description of the requirements contained in each ARAR. The National Environmental Policy Act (NEPA), as implemented by Army Regulation (AR) 200-2, *Environmental Effects of Army Actions*, is applicable to future land use alternatives that involve developing the site for commercial or residential purposes which could result in environmental impacts. If the site is left in its current condition for use as park land, then this ARAR could be covered by a categorical exclusion which exists for actions in support of other agencies/organizations involving community participation projects where that agency/organization is the proponent for the action. The clearance and removal of OE items from the site is also covered by a categorical exclusion applicable for land regeneration activities of native trees and vegetation including site preparation.

2.3.5 To Be Considered Criteria

Three action-specific TBCs have been identified for any potential removal actions at the 323-acre wooded site. The first action-specific TBC, AR 200-1, requires Army compliance with all environmental statutes and regulations and requires Army consultation with Federal, state, and local regulatory agencies. The second action-specific TBC, AR 385-64, requires that safety measures be taken for the handling of explosive ordnance. The final action-specific TBC, DOD 6055.9-STD, requires that specialized personnel be employed to detect, remove, and dispose of ordnance. This standard also defines the safety precautions and procedures for the detonation or disposal of ordnance.